ADDIS ABABA SCIENCE AND TECHNOLOGY UNIVERSITY

ASSESSMENT OF SAFETY AND HEALTH PERFORMANCE AMONG CONSTRUCTION SITE WORKERS IN ADDIS ABABA CONSTRUCTION PROJECTS, THE CASE OF KOYE FETCHE CONDOMINIUM PROJECTS

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A Thesis Submitted to College of Architecture and Civil Engineering for the Partial Fulfillment of the Requirements for the Degree of Master of Science in Construction Technology and Management

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NOVEMBER, 2018

DECLARATION

I hereby declare that this thesis entitled "**Assessment of safety and Health performance among construction site workers in Addis Ababa construction projects, the case Koye Fetche condominium project**" was composed by myself, with the guidance of my advisor, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted, in whole or in part, for any other degree or professional qualification.

Name: Tsegaye Diriba **Signature:_____ Date: _____**

APPROVAL PAGE

This MSc thesis entitled with **"Assessment of safety and Health performance among construction site workers in Addis Ababa construction projects, the case Koye Fetche condominium project"** has been approved by the following examiners in partial fulfillment of the requirement for the degree of Master of Science in **Construction Technology and Management**.

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ABSTRACT

Construction industry makes significant contributions to the socio-economic development process of a country. Its importance emanates largely from the direct and indirect impact on all economic activities. Now a days, Ethiopia also experience different construction industries like Public construction industry and private owned construction industry. The construction industry employs large unskilled labor. The state of being safe and health, is very important in construction project in order to promote construction and increase the country income. In every construction it is important to know safety and health rules and regulations, because of, reducing the risk happen during construction process. Because of, the injury of the worker or labor the country also loose the economic benefit required from individual workers or laborers.

The objective of this research is to assess safety and health performance among construction site workers in Addis Ababa construction projects, the case of Koye Fitche condominium project. The data gained from the respondents analyzed using measure central tendency and ranked according to their value.

Based on the results of the questionnaire survey, there is the lack of safety and health performance. These problem were happened because of, the absence of training, consultation for employees, formal health and safety programme and written safety and health policy. To help improve upon the operation of occupational health and safety management systems in the construction industry, it is recommended that; Addis Ababa housing project office should establish safety and health program at all of its branches, the employers should arrange adequate training for all of his new employees and existing employees, Addis Ababa housing project should order all its branch to establish safety and health department to organize safety and health training and consultation for employees, the employers or Addis Ababa housing project office, all assigned consultants office and the contractors should institute safety and health award scheme to motivate site workers.

Key Words; Safety, Health, Worker, and Construction

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ACRONYMS

BBS Behavioral Based Safety
CDM Construction Design Management
GDP Gross Domestic Product
GFCF Gross Fixed Capital Formation
GNI Gross National Income
ILO International Labor Organization
ISIC International Standards Industrial Classification
LDCs Least Developed Countries
LFS Labor Force Survey
MOFED Ministry of Finance and Economic Development
OSHA Occupational Safety and Health
SMEs Small and Medium Enterprises
PPE Personal Protective Equipment
SPSS Statistical Package for Social Science
STOP Safety Training Observation Program
UCBP University Capacity Building Program
US United State
UN United Nation
UNEP United Nation Environmental Protection

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Construction industry makes significant contributions to the socio-economic development process of a country. Its importance emanates largely from the direct and indirect impact on all economic activities. It contributes to the national output and stimulates the growth of other sectors through a complex system of linkages. It is noted that about one-tenth of the global economy is dedicated to constructing and operating homes and offices (UNEP, 1996). UNEP further observes that the industry consumes one-sixth to one half of the world's wood, minerals, water and energy. It contributes to employment and creates income for the population and has multiplier effects on the economy.

Now a days, Ethiopia also experience different construction industries like Public construction industry and private owned construction industry. The construction industry employs large unskilled labor. Throughout the developing world, the majority of employees in the industry are unskilled. Women are also found to be beneficiaries of the employment in the industry. However, the employment in the industry is mainly temporary in nature and once the job is over, the workers are obliged to find other jobs or return to their place of origin. When the construction idea is raised it is important to know that the area condition in which the construction process is carried out because of its labor safety.

However, in our country the use of safety principle is less recognized and the local construction parties that participate in the construction industry have little information and awareness about the uses and effects principles and labor safety mechanism.

Therefore, this research will deal with the assessment of safety and health awareness among construction site worker of public construction project in Addis Ababa, the case of Koye Fitche, the way we use the labor safety management and principles in order maximize the safety of labor in public project construction. As well as the research will point out the proper recommendations to the factor affecting the safety of labor in public construction project.

1.2 STATEMENT OF THE PROBLEM

Construction industries are widely practiced in all over the developed and developing countries. According to (Kachana, 2015) the construction industry is a very dangerous industry. The performance of the industry in occupational health and safety is very humble. The standard of occupational health and safety is even worse in developing countries. In developed countries, recent advancement in technology, on one hand, has contributed positively to industry productivity, but on the other hand, it has created a more challenging and unsafe work environment. Every construction worker is likely to be temporarily unfit for work at some time as a result of a significant injury or a health problem after working on a construction site.

Developed countries use different technologically advanced materials and personal protective equipment (PPE) like safety shoe, belt because, they are exposed to different problems. If the labor exposed to such problem they may lose their life, money and body part. Because of, the injury of the worker or labor the country also loose the economic benefit required from individual workers or laborers.

Industrial safety and health problems are becoming major challenges in Ethiopia because of low occupational hazards awareness, lack of workplace safety and health policy, and inefficient safety management systems, due to these factors employers, workers and the government are incurring measurable and immeasurable costs (Sebsibe and Esrael, 2016).

This research aims at assessing the performance of the use of safety materials and personal protective equipment (PPE) at construction industries and also assess Ethiopian legislation concerning construction project in order keep safety and health of workers to increase the income gained from construction industry. In this study appropriate measures also recommended based on the finding from case study of Koye Fetche.

1.3 SIGNIFICANCE OF THE RESEARCH

The significance of this research will be:

1. To assess safety and health performance among construction site workers, managers, skilled workers, un skilled workers and other user about the safety and health of individuals in the construction industries how to use the safety materials and principles,
2. To be used as the source when other persons do related research.

1.4 OBJECTIVES OF THE RESEARCH

1.4.1 GENERAL OBJECTIVE

The general objective of this research is to assess safety and health performance among construction site workers in Addis Ababa construction projects, the case of Koye Fitche condominium project.

1.4.2 SPECIFIC OBJECTIVE

- To assess safety and health performance among construction site workers in public construction projects in Addis Ababa.
- To identify key factors affecting safety and health performance among construction site workers of public construction projects in Addis Ababa.
- To recommend appropriate measures to improve safety and health practice among construction site workers

1.5 RESEARCH QUESTIONS

- ☞ What are the safety and health practices performed in public construction projects of Koye Fetche condominium project?
- ☞ What are the key factors affecting safety and health performance of public construction site workers?
- ☞ What are the relevant methods to improve the safety and health performance among construction site workers?

1.6 SCOPE OF THE STUDY

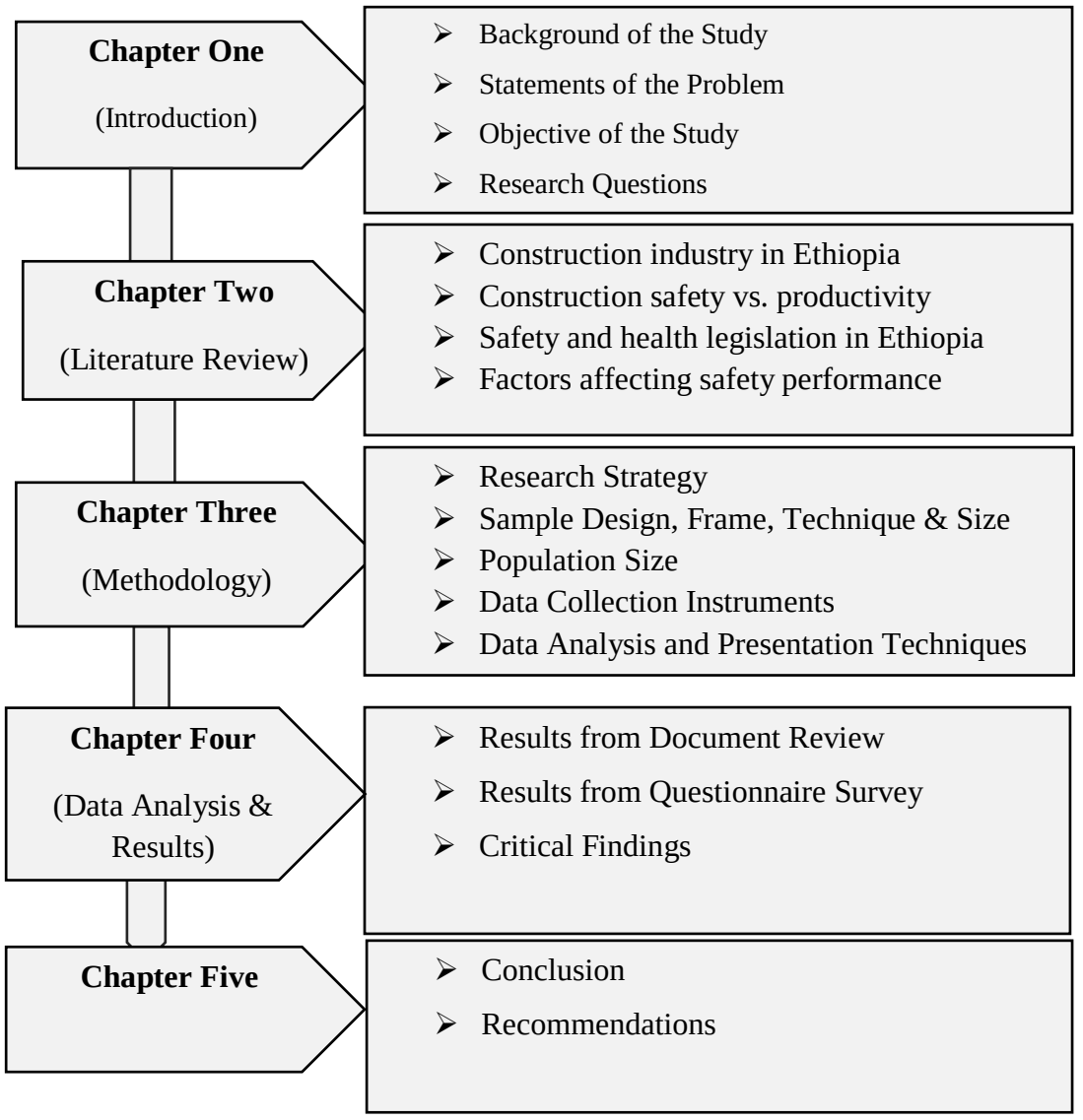
The scope of the study is limited to assessing safety and health performance among construction site workers in Addis Ababa construction projects, the case of koye fetche condominium project, to recommend relevant methods to improve the safety and health performance among construction site workers.

1.7 LIMITATION OF THE STUDY

The major limitation of this study was lack of relevant data. Unavailability of adequate documented information and unwillingness of Stakeholders i.e. client, consultants and contractors to give document was the limitations of this study. In addition to these, there was limitation on related research which closely focused on the assessment of safety and health performance among construction site workers in Addis Ababa construction projects. However, extensive literature search related to the topic and works on related topics have been explored in order to build a general insight about the topic under study

1.8 ORGANIZATION OF THE STUDY

Generally, this research consists of five chapters; Chapter One dealt with the proposal for identifying and defining the problems and setting up of the objectives of the study. Chapter Two concentrated on literature review and Chapter Three dealt with materials acquisition and methodology and Chapter Four focused on generated results and discussions. Lastly, Chapter Five incorporated conclusions and recommendations stated below.



CHAPTER TWO

LITRATURE REVIEW

2.1 DEFINITIONS OF TERMS

2.1.1 HEALTH

Health is the general condition of a person in mind, body and spirit, usually meaning to be free from illness, injury or pain. According to merriam-webster (*https://www.merriam-webster.com/dictionary/health 2:32)* dictionary the condition of being sound in body, mind, or spirit or a condition in which someone or something is thriving or doing well.

2.1.2 SAFETY

Safety is related to external threats, and the perception of being sheltered from threats. According to the business Dictionary (*https://en.oxforddictionaries.com/definition/safety*), safety is defined as a relative freedom from danger, risk, or threat of harm, injury, or loss of personnel and/or property, whether caused deliberately or by accident.

2.1.3 WORKER

According to oxford dictionary (*https://en.oxforddictionaries.com/definition/worker 2:23pm*) worker is a person who does a specified type of work or who works in a specified way. In this study worker a person who involved in a work public project construction.

2.2 CONSTRUCTION

According to UN (1996) International Standards Industrial Classification (ISIC), Rev. 3, construction is defined generally as an economic activity directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature, and other such engineering constructions as roads, bridges, dams, etc. The industry consists of a group of establishments engaged in one or more of the following activities: Site preparation; Building of complete constructions or parts thereof, civil engineering; Building installation, Building completion and Renting of construction or Demolition equipment with operators. The industry includes all activities of construction irrespective of whether they are carried out by private or public construction firms, whether done on a contractual basis or of own account.

In the case of Ethiopia, although the definition adopted by the National Accounts department of MOFED is the same as that of ISIC, the activities actually covered under the industry are the construction and maintenance activities of: (1) Residential buildings in urban and rural areas, (2) Nonresidential buildings, i.e. factory buildings, ware houses, office buildings, garages, hotels, schools, hospitals, clinics, etc., (3) Other construction works, like roads, dams, dikes, athletic fields, electricity transmission lines, telephone & telegraph lines, etc. (MOFED, 2005).

2.3 CONSTRUCTION INDUSTRY

The construction industry is a sector of the economy that transforms various resources into constructed physical economic and social infrastructure necessary for socio-economic development. It embraces the process by which the said physical infrastructure are planned, designed, procured, constructed or produced, altered, repaired, maintained, and demolished National Construction Council (2004-2005).

The construction industry is an economic investment and its relationship with economic development is well posited. Many studies have highlighted the significant contribution of the construction industry to national economic development (Myers 2013). According to Olanrewaju and Abdul-Aziz, (2015) although, some argue that the extent of its contribution is not always clear. Others have argued that the construction industry can be used to regulate the economy, while others tend to differ (Olanrewaju, and Abdulaziz, 2015). Some have argued that the contribution is limited to the short term. There are also those who argue that it is economic growth that drives the construction industry rather than the industry advancing the economy, i.e. that the construction industry is not a driver of economic prosperity rather it only follows the "path" defined by the total economic growth rate (Olanrewaju, and Abdulaziz, 2015).

Among the major economic sectors, the importance of the construction industry is unique regardless of whether the country is underdeveloped, developing or developed. For instance, the construction industry is subjected to quarterly and annual statements of national accounts. The construction industry appears more than once in the national accounts: GDP, GNI and GFCF. The outputs are measured by gross output, capital formation and added value. More than half of GFCF consists of construction outputs. The homes, offices, roads, factories, and

shopping malls are all part of the outputs of the construction industry, among other capital or investment goods (Olanrewaju, and Abdulaziz, 2015).

The industry comprises of organizations and persons who include companies, firms and individuals working as consultants, main contractors and sub-contractors, material and component producers, plant and equipment suppliers, builders and merchants. The industry has a close relationship with clients and financiers. The government is involved in the industry as purchaser (client), financier, regulator and operator (National Construction Council, 2004-2005).

2.4 CHARACTERISTICS OF CONSTRUCTION INDUSTRY IN ETHIOPIA

A substantial part of the construction work takes place in the informal sector of industry too. The buildings and other small infrastructure facilities for this major part of the population are constructed by the informal sector. The informal construction sector comprises of unregulated and unprotected individuals engaged in economic activities that include the supply of labour, materials and building components to the formal construction sector directly in response to needs of clients. It also includes works carried out by individuals and groups on a self-help basis without contracting, National Construction Council (2004-2005).

The majority of enterprises in the construction industry in least developed countries (LDCs) are small with a few of them being in the medium category. It is said that, world-wide, small and medium enterprises (SMEs) account for 90% of all enterprises and over 99% in developing countries (National Construction Council, 2004-2005).

In developed countries and countries with economies in transition, other than the least developed countries, their local construction industries have the lions share in market opportunities National Construction Council (2004-2005).

2.5 CONSTRUCTION INDUSTRY IN ETHIOPIA

The construction industry in Ethiopia has been developing tremendously since 2001. Recent studies by (Zewdu & Aregaw 2015 as cited in Journal of Architecture and Civil Engineering Volume 2) indicated that the GDP contribution of the industry has been raised to 5.6% and approaches to the sub Saharan average (6%). Meanwhile, the Gross Domestic Capital

Formation (GDCF), which was about 60 percent in 1996/97, has reached nearly 75% in 2002/03.

According to Ayalew, et al (2016), since then, the country has been implementing significant number of programs/projects, which include the University Capacity Building Program (UCBP), the housing development program and the road sector programs among others.

2.5.1 CONTRIBUTION TO EMPLOYMENT

The role of the construction industry in terms of creating employment opportunities especially in urban areas is becoming visible. According to the 1999 Labor Force Survey (LFS), of the total employed persons in the country which was estimated at around 25 million, 0.9 percent was estimated to be in the construction industry. The contribution of the industry in terms of creating employment has slightly improved over the years. For instance, according to the 2005 LFS, of the total employed population in the country (31.4 million), 1.4 percent was estimated to be in the construction industry. `

2.5.2 CONTRIBUTION TO GOVERNMENT REVENUE

The construction industry also contributes to the generation of revenue for the government. The rental income tax is one of the major revenue sources within the construction industry to the government According to Ethiopian Economic Association Volume VI 2008, the income tax which was Birr 15.2 million in 1997/98 has increased to Birr 78.3 million in 2004/05.

2.6 SAFETY OF CONSTRUCTION AND STRUCTURES

Safety is defined as the state of being relatively free from harm, danger, injury or damage. Unsafe conditions in facilities under construction, or in constructed facilities, can be caused by the engineers' failure to develop and implement structurally and environmentally sound designs; performing construction in an unsafe manner on the jobsite; or allowing conditions during service to exceed the structural capacity of the facility (Usmen, and Vilnits, 2015). A safety hazard exists when such conditions prevail, and the result is an accident leading to jobsite injuries and fatalities during construction. Similarly, if the safety hazard exists in a structure in the form of an overload, it causes the facility in part or as a whole to become unstable a leading to collapse. Loss of lives and property damage are the common consequences. The role of the

design and construction engineers is to anticipate and proactively prevent these happenings (Usmen, and Vilnits, 2015).

2.6.1 OCCUPATIONAL SAFETY

Occupational safety deals with the identification and control of environmental and personal hazards in the work place. According to the US Bureau of Labor Statistics, the recordable injury rate was about 4.0 for every 100 full-time equivalent workers in the US construction industry in 2010, coupled by 774 fatalities in the same year (Usmen, and Vilnits, 2015). These numbers have improved significantly over the past few decades due to stricter enforcement of standards, industry training efforts, and advancement of technology.

2.6.2 CONSTRUCTION SAFETY VS. PRODUCTIVITY

Construction projects are expected to simultaneously achieve multiple goals concerning cost, schedule, quality, productivity and safety (Usmen, and Vilnits, 2015). These factors are related, while they may be in apparent conflict with each other. Because of pressures on cost, schedule, and productivity, workers may engage in unsafe behavior, believing that this enables them to be more productive. There is some evidence to support the notion of safety being negatively correlated with productivity.

However, there is stronger support for the opposite; that is, safety and productivity are positively correlated, meaning there would be no loss of productivity due to taking safety measures or executing safety programs in a construction project (Usmen, and Vilnits, 2015). On the negative correlation side, there are reports in the safety literature that workers may ignore safety due to productivity concerns. In a recent study, safety audits conducted at 200 residential sites showed 59 % non-compliance, meaning widespread disregard for safety. It was found that this came about as a result of concern over taking time off work to learn new safety measures, fear of cost of compliance, and lack of knowledge (inadequate training).

In another study, it was observed that managers believed there was not enough time to work safely and safety practices decreased productivity. In support of positive correlation between safety and productivity, a U.K. study indicated that productivity losses were higher with safety violations than with preventive safety practices. Similar evidence in a different study suggested

that safety management has a positive influence on productivity because of declining task performance by the entire crew in case of injuries (Usmen, and Vilnits, 2015).

2.6.3 CONSTRUCTION INDUSTRY INCIDENTS

The data on global construction fatalities suggests that at least 60,000 fatal incidents occur each year at construction sites worldwide, equivalent to one death every ten minutes (ILO, 2005). Furthermore, one out of every six fatal workplace incidents take place at a construction site, and this rate is increased in industrialized countries, where construction site fatalities account for 25-40% of all workplace fatalities (Sarah, 2015).

2.6.4 INDUSTRY APPROACHES TO WORKPLACE SAFETY

Industry's response to workplace safety incidents has naturally matured over time, and various programs purporting to improve safety culture are now reasonably common in large organizations. There are three major approaches to safety improvement in organizations: safety management systems (SMSs); behaviour based safety (BBS) approaches; and safety culture change programs. These approaches are not mutually exclusive, and in fact some argue that the most effective approach is to use a combination of all three (Dejoy, 2005). A brief overview of these approaches follows to provide a background to practical approaches to safety management applied in industry (Sarah, 2015).

2.7 SAFETY MANAGEMENT SYSTEMS

The development of SMSs has been a large focus for organizations attempting to improve their safety performance (Sarah, 2015). SMSs are structured processes for managing safety risk, often incorporated into electronic business systems. Guldenmund (2010) points to the need to integrate the current academic, analytical and pragmatic approaches and suggests that developments of safety management systems will provide a future focus and framework for people to give meaning and direction to their safety actions. In particular, high risk industries understand the importance of effective systems to manage risk (Sarah, 2015).

2.7.1 BEHAVIOR BASED SAFETY

Behavior based approaches to safety had considerable popularity with industry, largely due to the well-known DuPont program, 'STOP' (Safety Training Observation Program; DuPont, 1991). The behavior based safety approach relies on a concept known as cognitive dissonance,

which describes a state of psychological tension in individuals, produced by simultaneously having two opposing cognitions (Vaughan & Hogg, 2011 as cited in Sarah. 2015). This tension is thought to be quite uncomfortable and people are motivated to reduce it by changing or rejecting one of the cognitions.

2.7.2 SAFETY CULTURE CHANGE PROGRAMS

Safety culture programs are the latest trend in industry approaches to safety management (Guldenmund, 2010). In contrast to BBS approaches, safety culture approaches focus on articulating safety values with a top-down approach involving organizational leaders in the first instance (Sarah, 2015). Rather than focusing on individual behaviors specifically, safety culture aims to create a self-sustaining environment based on a comprehensive understanding of the causes of workplace safety performance or lack thereof (Dejoy, 2005).

2.7.3 SAFETY POLICIES

Safe and healthy working conditions do not happen by chance. Employers need to have a written safety policy for their enterprise setting out the safety and health standards which it is their objective to achieve. The policy should name the senior executive who is responsible for seeing that the standards are achieved, and who has authority to allocate responsibilities to management and supervisors at all levels and to see they are carried out (ILO, 1995). The safety policy should deal with the following matters:

– Arrangements for training at all levels. Particular attention needs to be given to key workers such as scaffolds and crane operators whose mistakes can be especially dangerous to other workers;

– Safe methods or systems of work for hazardous operations: the workers carrying out these operations should be involved in their preparation;

– The duties and responsibilities of supervisors and key workers;

– Arrangements by which information on safety and health is to be made known;

– Arrangements for setting up safety committees;

– The selection and control of subcontractors.

2.8 SAFETY ORGANIZATION

The organization of safety on the construction site will be determined by the size of the work site, the system of employment and the way in which the project is being organized. Safety and

health records should be kept which facilitate the identification and resolution of safety and health problems on the site (ILO, 1995).

2.9 LEGISLATIVE GOVERNING OF HEALTH AND SAFETY IN CONSTRUCTION

In this topic, a review of the legislation governing health and safety in construction is given. The emphasis will be on the Ethiopia construction policy and the OSHA. Any health and safety legislation requires that good management and common sense would lead employers to look at what the risks are in the workplace and take sensible measures to tackle them (Alhajeri, 2011). Risk reduction or control measures rely for their effectiveness on knowledge of risk and a willingness to take action to reduce it. This alone is insufficient, unless it is covered by legal sanctions in the event of negligence leading to injury or illness. Thus, most countries have a framework of health and safety law, backed by a system of enforcement, analogous to those parts of the criminal law seeking to protect citizens from other forms of violence. In addition, people injured as a result of their work generally have the right to sue their employers in the civil courts for negligently causing such injury, the onus being on the injured party to prove negligence.

There are many ways where health and safety in construction industries being controlled in order to reduce the number of accidents subsequently reducing the numbers of fatality and injuries to the workers and damage to the equipment's. Governments worldwide have maintained an ongoing commitment towards establishing a working environment free of injury and disease (Alhajeri, 2011). This commitment is reflected by establishing performance based workplace health and safety legislation which sets generalized performance objectives and provides a system of clearly stated responsibilities to encourage greater self-regulation for the construction industry. Some countries depend totally on government in controlling safety at worksite. In spite of the high costs of work accidents, many

Most countries have now a law regarding Health and Safety at Work that protects their population from personal harm by forcing contractors, installations, equipment, tools, etc. to have a safety level that is at least at the level of the generally accepted technical level corresponding to good engineering practice. The practice of safety in construction in the USA is regulated by governmental agencies such as the Occupational Safety and Health Administration (OSHA), which provides strict rules and regulations to enforce safety and health

standards on job site. The (OSHA) defines the safety and health regulations for the construction industry. The regulations apply to all that are involved in construction work including contractors, subcontractors and suppliers. According to general safety and health provisions, it is the responsibility of the employer to initiate and maintain programs for safe working conditions for employees. It further states that any such programs shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by designated competent persons. The safety training and education regulations create a responsibility for the employer to avail himself of the safety and health training programs and instruct each employee of any unsafe conditions and regulations applicable to employee's work environment to prevent any hazards.

2.10 SAFETY AND HEALTH LEGISLATION IN ETHIOPIA

2.10.1 ETHIOPIAN CONSTITUTION

As illustrated in Ethiopian constitution article 42 sub article 1 workers have the right to reasonable limitation of working hours, to rest, to leisure, to periodic leaves with pay, to remuneration for public holidays as well as healthy and safe work environment.

2.10.2 CIVIL CODE 1960

Principles of the proclamation No. 165

This proclamation identifies the principles in construction projects and liability and non-liability of the employers.

- ☞ The employer shall take such measures as are required by the special circumstances of the work to safeguard the life, physical integrity, health and moral standing of the employee.
- ☞ He shall in particular arrange the premises and keep up the equipment in his undertaking with this object in view, in accordance with the general practice and technical requirements.

Liability of the employer;

- ➢ Where the employee performs his work on the premises or at the place assigned to him by the contract of employment, the employer shall he liable for the accidents which the employee suffers during the time and at the place where he works.
- ➢ Rest periods belonging to the work shall he regarded as part of the work-time.

- Premises placed by the employer at the disposal of the employee during these rest periods shall he regarded as part of the work place.

Non-liability of employer- Fault of employee.

- ✓ The employer shall be relieved of his liability under the preceding Articles where he proves that the accident or disease is due to the intentional act of the victim.
- ✓ He shall also be relieved of liability where he proves that the accident or disease has happened because the employee has contravened a regulation to which his attention had been especially drawn in writing.

2.10.3 CONSTRUCTION CODES #14

Construction codes article 217 which updated in May, 2009 illustrate the issues safety in construction projects as follows.

Safety Compliance Officer

In addition to any other remedies or penalties authorized by law, the commissioner in his or her discretion may require the presence of a Safety Compliance Officer (SCO) at any permitted site that has received immediately hazardous violations that the commissioner determines adversely affect public safety and require the presence of a Safety Compliance Officer (SCO) to protect public safety.

In any circumstance where a Safety Compliance Officer (SCO), is required, the commissioner shall state in writing the circumstances necessitating the Safety Compliance Officer (SCO) and the duration of the compliance monitoring and/or conditions that must be satisfied prior to the termination of the compliance monitoring.

2.10.4 PROCLAMATION 377/2003

Part seven of the federal democratic republic of Ethiopia proclamation or Proclamation number 377/2003 under topic of ***occupational safety, health and working environment*** identifies obligations of the employer and the worker as follows.

Obligations of an Employer

According to this proclamation an employer shall take the necessary measure to safeguard adequately the health and safety of the workers;

He shall in particular:

- ★ comply with the occupational health and safety requirements provided for in this Proclamation;
- ★ take appropriate steps to ensure that workers are properly instructed and notified concerning the hazards of their respective occupations and the precautions necessary to avoid accident and injury to health; ensure that directives are given and also assign safety officer; establish an occupational, safety and health committee of which the committee's establishment, shall be determined by a directive issued by the Minister;
- ★ provide workers with protective equipment, clothing and other materials and instruct them of its use;

Obligations of a worker

A worker shall:

- ✓ Co-operate in the formulation of work rules to safeguard the workers' health and safety, and implement same.
- ✓ Inform forthwith to the employer any defect related to the appliances used and injury to health and safety of the workers that he discovers in the undertaking.
- ✓ Report to the employer any situation which he may have reason to believe could present a hazard and which he cannot avoid on his own any accident or injury to health which arises in the course of or in connection with work.
- ✓ Make proper use of all safeguards, safety devices and other appliance furnished for the protection of his health or safety and for the protection of the health and safety of others.
- ✓ Obey all health and safety instructions issued by the employer or by the competent authority.

2.10.5 MINISTRY OF LABOUR & SOCIAL AFFAIRS 2008

Ethiopian ministry of labour and social affairs on ***Occupational Safety and Health Directive*** also stipulated arrangements at the workplace.

Responsibilities of employers;

- ✓ Employers shall comply with the safety and health measures to be taken regarding hazards or risks to safety and health at work, including the application of standards, codes and guidelines as prescribed, approved or recognized by the competent authority.

- ✓ Employers shall provide and maintain workplaces, plant, equipment, tools and machinery and organize work so as to eliminate or control hazards at work, and be consistent with standards, codes and guidelines as prescribed, approved or recognized by the competent authority.

2.11 FACTORS AFFECTING SAFETY PERFORMANCE

As the total 60 factors that affect safety performance may be encountered in a construction projects were identified (Sagar and Rushabh, 2017). And also they identifies safety performance factor into ten groups.

2.11.1 ADMINISTRATIVE AND MANAGEMENT

Top management should consider safety as equally important as other aspects in the organization, such as production and profit. There is also a need for safety awareness of company's top management. It is crucial for top management to encourage all employees to follow safety procedures and implement initiatives to improve their safety performance (Sagar and Rushabh, 2017). In order to demonstrate their commitment towards safety, top management needs to provide necessary resources, money, tools, and equipment, for employees to work safely and to monitor safety.

Management related factors are listed below:

- Safety awareness of company's top management
- Conduction of safety policy review
- Safety awareness of project managers
- Issuing & implementation of in house safety rules, safety program or manuals including emergency plan & procedure
- Availability a clear company safety policy
- Management's attitude towards employee's welfare

2.11.2 ROLE OF GOVERNMENT AND ENGINEERING SOCIETIES

Government should encourage, through significant incentives and recognition, voluntary employer programs for excelling in safety and health achievement. Government standards setting must be conducted with efficiency, maximizing use of public input and available data to develop and publish reasonable standards in a timely manner. Government enforcement

should be fair and consistent. Penalties should not be set as a budgeted government revenue source, but should be based on the seriousness of noncompliance.

Government related factors are listed below:

- ★ Issuing of safety laws, standards, regulations & legislations
- ★ Rigorous enforcement of safety regulations

2.11.3 PROJECT NATURE

Project Nature factor in different geographical location may vary in term of producing differential effects on safety performance so organizational also keep updating and response to requirements imposed by the changing environment. Geographical location, weather condition related to poor visibility and night works have a significant impact on work at night. The construction industry is a complex with a number of stakeholders working together to complete the construction project. This complex system also some information being passed from one team (construction) to another, which is need for risk assessment and communication. In the meantime, the physical space, the working procedure (site operation), tools and methods used and resources available are factors influencing risk assessment and communication. Project nature related factors are listed below:

- ➢ Size of the project
- ➢ Ratio of site area to building area
- ➢ Planning and organizing the site (layout) - work environment
- ➢ Number of Employees on site
- ➢ Size of the crew
- ➢ Number of subcontractors
- ➢ Co-ordination, control and management of sub-contractors
- ➢ Involvement of top management
- ➢ Team turnover (team stability).

2.11.4 HISTORIC, HUMAN AND PSYCHOLOGICAL CLIMATE

The historical factors are assessed by the background and characteristics of the individual, such as age and experience. Work accident experience is positively linked with external attribution and unsafe behaviors but negatively linked with internal attributions. People with work accident

experience tend to attribute the cause of accident to the external environment, and are likely to have unsafe behaviors. The safety behavior is represented as to employee risk-taking behavior and compliance to safety rules and procedures beliefs, attitudes and perceptions of responsibility and control. The behavior base on safety refers to the behaviors which lead to reduction of risk behaviors and as a result reduce accidents and injuries. Historic, human and psychological climate related factors are listed below:

- Employee age
- Employee experience
- Employee education
- Employee safety training received
- Employee marital status
- Level of modularization
- Employee safety awareness, knowledge and involvement
- Employee accident experience
- Employees language and communication barriers
- Employees culture background
- Relation between the management and employees on the site

2.11.5 ORGANIZATIONAL STRUCTURE

Companies can take many approaches to developing and implementing safety programs. Some programs focus more on the application of safety rules through an accountability system. Other programs provide safety education/training to enhance employees' safety awareness, attitude and commitment through a cultural intervention. Improvements in organizational structure, organizational importance of safety, safety responsibility and accountability, communication, management behavior, employee involvement, and employee responses and behavior can help improve safety performance. Organizational related factors are listed below:

- ✓ Number of layers of management
- ✓ Percentage of new Employees on site
- ✓ Definition of safety responsibility
- ✓ Number of safety supervisors

- ✓ Authority of safety supervisors
- ✓ Number of Employees on site
- ✓ Size of the crew
- ✓ Number of subcontractors
- ✓ Co-ordination, control and management of sub-contractors
- ✓ Involvement of top management
- ✓ Team turnover (team stability).

2.11.6 SAFETY INSPECTIONS

Regular safety inspections help management that the safe work practices are being maintained. By having your employees assist with the safety inspection, awareness remains high and employees learn more about safety hazards. Construction sites require constant monitoring and observations to keep ahead of safety issues. The use of safety inspections has been shown to have a positive effect on a company's loss control initiative. In fact companies who perform safety inspections have fewer accidents incidents than companies that do not perform inspections. Safety inspection related factors are listed below:

- Safety inspection by government Authorities
- Safety inspection by management
- Safety inspection by safety supervisor

2.11.7 SAFETY MEETINGS, RECORDS AND REPORTS

Safety meetings provide a chance to present new safety training and information. They also offer a chance for workers to review previously learned information. Without safety meetings, workers can be lulled by routines and slowly decrease their alertness and attention to safety as they perform the same tasks day after day. They benefit from being reminded how to stay safe and why safety methods are needed. And also the information provided through recording and reporting enables the enforcing authorities to identify where and how risks arise, and to investigate serious accidents. Safety Meetings, Records and Reports related factors are listed below:

- ☞ Conducting regular toolbox meetings (safety meetings) by safety supervisor
- ☞ Conducting safety meeting before each activity begins

- ☞ Attendance of Safety meetings by management
- ☞ Recording and reporting of daily safety issues

2.11.8 INCENTIVE

Incentives factor is one of the determinants that motivate workers to behave in a desired manner to safety regulations on site. It can be viewed a psychological approach that rewards workers for their adhered routine on site. Combination of reward and punishment can be regarded as a strategy that inculcates safe behaviors among workers on site. Incentive related factors are listed below:

- ✓ Implementation of safety rewards
- ✓ Implementation of safety fines
- ✓ Implementation of disciplinary actions

2.11.9 SAFETY EDUCATION AND TRAINING

Safety Educating and Training defines as a process that enables people to acquire new knowledge, learn new skills, and perform behaviors in a new way. Further distinguishes between training and development by stating that training refers to the acquisition of 'specific skills or knowledge', 'displaying poster', 'issuing of safety booklet' and 'development refers' to the improvement of intellectual and emotional ability needed to perform better at a specific work. Safety education and training related factors are listed below:

- o Cost of the project
- o Planning and scheduling of the project
- o Application of new technology in construction
- o Type of owner
- o Complexity of the design

2.11.10 MEDICAL FACILITIES

The main purpose of measuring health and safety performance is to provide information on the progress and 'current status of the strategies', 'processes' and activities employed to 'control health' and 'safety risks'. Health and safety are defined as the degrees to which the general conditions promote the completion of a project without major accidents or injuries(Sagar and

Rushabh, 2017). Throughout the world, construction industry is known as one of the most hazardous activities. Medical facilities related factors are listed below:

- ★ Availability of medical advice
- ★ Availability of adequate facilities for first aid treatment
- ★ Conducting periodically random drug testing

2.12 MEASURE TO IMPROVE WORK PLACE SAFETY

This topic deals with how to improve work place safety in construction site. According to (Riddel, 2016) work place is improved through the following mechanisms.

2.12.1 AWARENESS

Before any worker no matter his or her role or experience level can set foot on a construction site, he or she must be fully cognizant of the possible hazards. Ignorant workers are perhaps the biggest dangers in any industry, as their unknowing mistakes put everyone else at risk. Understanding of perils at hand and sustaining a perpetual state of alertness is perhaps the number-one best way to prevent accidents.

2.12.2 TRAINING

Though most of a construction worker's skills can be gained on the job, safety is one skill set that is best learned before works enter the construction site. The Occupational Safety and Health Administration (OSHA) and other organizations publish some resources to help businesses train their new laborers on standard safety and security practices, including pamphlets, worksheets, training videos, and even on-site training opportunities. Experienced workers should be expected to refresh their knowledge of standard safety by attending regular training sessions throughout the year.

2.12.3 COMMUNICATION

Accidents are more likely to occur when workers are unsure what to expect. Direct communication regarding the day's goals and activities will cut down on surprises that could cause bodily harm. Construction firms would be wise to equip workers with devices, like smartphones or headsets, which allow fast and efficient communication among team members.

2.12.4 DOCUMENTATION

There are some legal hoops most construction companies must jump through to begin building, and it is essential that all proper registrations and licenses are earned before work begins.

Supervisors and contractors who will be charged with particularly difficult tasks, like blasting, certainly should provide evidence of their certification well in advance of their employment on the job site. Not only does this prevent accidents due to improper training, but it protects the construction firm from legal action and public scrutiny. Also, documenting all work in the field using cloud and mobile technology is making it easier than ever before to mitigate future lawsuits.

2.12.5 PROPER EQUIPMENT

Construction workers equipped with improper gear are bound to make fatal errors. Not only should each piece of equipment on the job site be ideally suited to the task at hand, but construction firms must make certain that all machinery and material are well maintained.

Construction companies must also consider equipment that doesn't directly contribute to the construction project. Workers should have plenty of water on-site as well as a shady place to prevent dehydration and exposure-related illnesses. Longer construction projects may even benefit from fabric structures to store equipment and cover incomplete sites.

2.12.6 SUPERVISION

Ideally, construction workers would fully understand the ramifications of inadequate safety precautions and thus act in a manner to ensure site-wide well-being but this is not a perfect world. Every site must have a strong supervisor who is willing and capable of enforcing safety standards with no exceptions. This foreman must keep tabs on all employees throughout the day and correct those who fail to commit to proper safety procedures.

2.12.7 INNOVATION

The accident rate would be even higher than it is today if it were not for construction firms willing to devote extra resources to keep their employees safe. The development of new practices that will enhance security should always be encouraged, and companies should avoid speaking against legislation aimed at improving safety protocols. Perhaps with enough innovation, all construction sites can be 100 percent accident-free.

2.12.8 TRANSPARENCY

The worst thing any construction firm can do for its reputation is attempting a cover-up. Hiding accidents from the press and the public not only lowers the opinion of a single endeavor — it paints the building industry as a whole in a negative light. Ultimately, people understand that accidents happen, and as long as contractors are doing their best to foster a safe environment

for their workers, any accidents that do occur will only contribute to the growing need to augment modern safety techniques. Transparency, along with the other seven practices on this list, will help construction as a whole become a safer industry in which to work.

2.13 GAP ANALYSIS

This titles deals with the gap assessment on safety and health legislation. From the literature civil 1960, Ministry of labour and social service (MOLSA), Occupational safety and health and proclamation 377/2003 clearly defines the obligations of the employers in order to protect the workers from hazards.

a) Civil code 1960

The employer shall take such measures as are required by the special circumstances of the work to safeguard the life, physical integrity, health and moral standing of the employee.
He shall in particular arrange the premises and keep up the equipment in his undertaking with this object in view, in accordance with the general practice and technical requirements.

b) Occupational safety and health agency (OSHA)

The Occupational Safety and Health created OSHA, which sets and enforces protective workplace safety and health standards. Employers also must comply with the General Duty Clause of the OSH Act, which requires them to keep their workplaces free of serious recognized hazards.

c) Proclamation 377/2003

Comply with the occupational health and safety requirements provided for in this Proclamation;

Take appropriate steps to ensure that workers are properly instructed and notified concerning the hazards of their respective occupations and the precautions necessary to avoid accident and injury to health; ensure that directives are given and also assign safety officer; establish an occupational, safety and health committee of which the committee's establishment, shall be determined by a directive issued by the Minister;

Provide workers with protective equipment, clothing and other materials and instruct them of its use;

d) Ministry of labour and social service (MOLSA),

Employers shall comply with the safety and health measures to be taken regarding hazards or risks to safety and health at work.

Employers shall provide and maintain workplaces, plant, equipment, tools and machinery and organize work so as to eliminate or control hazards at work, and be consistent with standards, codes and guidelines as prescribed, approved or recognized by the competent authority.

Generally all legislations are not applied in action on construction site, because the workers didn't have the protective equipment describe in the legislation. This implies that the workers exposed to hazards occurred at construction site.

CHAPTER THREE

MATERIALS AND METHODS

3.1 INTRODUCTION

This research deals with safety and health awareness among construction site workers selected from public project of Addis Ababa housing construction project. From literature review and past studies, it was obtained that there were different methodologies used in order to achieve the required objectives. Some of previous studies focused on assessment of safety and health awareness among construction site workers with in general view, concentrated on one or two directions such as identification of safety legislation, key factors affecting safety of site workers and other studies focused on how to manage safety and health problems in construction projects. The findings will build on existing research and provide knowledge that will assist building contractors to effectively management health and safety issues on site. The relevant information/data will be obtained and how it will be obtained is contained in this chapter. This chapter discusses the research design, the sampling method, data collection and data analysis method.

3.2 RESEARCH DESIGN

The research procedure is initially an extensive literature search on existing work on Health and Safety awareness in the Building Construction industry and later a survey using self-administered questionnaire approach. Statistical techniques has been then be used to analyze the information gathered.

Below is a summary of the procedure for the research;

1. Review of literature at libraries, on the internet, from journals, magazines, publications, research thesis and relevant textbooks on Health and Safety awareness.

2. Questionnaire survey using sampling methods on Addis Ababa housing construction project Koye Fetche district stakeholders, clients, consultants, contractors, and daily labours.

3. Analysis of questionnaire using statistical techniques.

3.3 SAMPLE SELECTION

The quantitative data collection samples were selected based on purposive sampling method from professionals who were working in client, contractors, consultant, and daily labours working with AAHDPO during the study period. This will ensure to collect reliable data from professionals.

3.4 SAMPLE SIZE

Sampling is the process of selecting representative units of a population for the study in research investigation. Sample size is a small proportion of a population selected for observation and analysis (Wood and Haber 2009). The samples are selected purposely from contractor companies, consultant offices and client as well as the daily labours of Koye Fetche district of Addis Ababa housing development project office. The sample size can be calculated as following equation, in order to achieve 94% confidence level (Assaf et al., 2001, Moore et al., 2003 and Kish, 2005).

According to information received from the Addis Ababa housing development project office (AAHDPO) Koye Fetche district, there were 101 client side employers, 71 consultant employers, and 102 contractors which contain 306 workers. From this data there were 3 managers from clients, 3 managers from consultants and 102 managers from contractors. In general there were 108 managers and 370 skilled workers.

$$n = \frac{N'}{1+\frac{N'}{N}}$$ .....Equation (3.1)

Where:

N = total number of population

n = sample size from finite population

N’ = sample size from infinite population = S^2/V^2; where S^2 is the variance of the population elements and V is a standard error of sampling population. (Usually for infinite population sample, S = 0.5 and V=0.06). $N' = S^2 / V^2 = (0.5^2) / (0.06^2) = 69$

Therefore; for 108 managers:

$n = N'/ [1+ (N' / N)]$

$N' = S^2 / V^2 = (0.5)^2 / (0.06)^2 = 69$

N = 108

n = 69 / [1+ (69 /108)] = 42

This means that the questionnaire should be distributed to 42 managers in order to achieve 95% confidence level.

For skilled workers: n = N'/ [1+ (N' / N)]

$N' = S^2 / V^2 = (0.5)^2 / (0.06)^2 = 69$

N =370

n = 69 / [1+ (69 /370)] = 58

This means that the questionnaire should be distributed to 58 skilled workers in order to achieve 95 % confidence level.

For daily labours, the number daily labours (unskilled workers) is different from time to time according to the data obtained from contractors organizations of Koye Fetche site. For this reason 30 samples selected from them.

3.5 SAMPLE SELECTION METHOD

The sample selection method used in this study is the purposive sample selection of the respondents. The list of respondents was entered in to Kish formula and the sample size is calculated.

3.6 CHARACTERISTICS OF THE RESPONDENTS

Generally, these respondents are projects managers, site engineers and office engineer, as they have a practical experience in construction industry field and daily labours (unskilled workers). The sufficient experiences of the managers and skilled workers is a suitable indication to find out the perceptive of the relative importance of project performance indicators of key stakeholders in the construction industry.

The participants were identified by the representative of the respective organizations after explaining the objectives of the study. The total number of distributed questionnaires were: 42 to the managers; 58 to skilled workers; and 30 to daily labours (unskilled workers). However, the total number of responded and returned forms were 40 (95.2%), 50 (86.2%), and 30 (100%) from the managers, skilled workers, and daily labours (unskilled workers) respectively.

3.7 DESIGN OF RESEARCH INSTRUMENT

In order to achieve the aim and objectives of the study, well-structured close-ended questionnaires were designed to gather information from public construction project sites in

Koye Fetche. These questions were ethical and feasible questions that measure opinion and were without biased wording, questions with multiple options which gave the respondents the opportunity of presenting their ideas by way of selecting from the options provided.

3.8 STRUCTURE OF QUESTIONNAIRE

The questionnaire sought information on the background of respondents; the names of their companies, locations, their genders, their number of years of experience in the construction industry, and their educational backgrounds. They were asked to indicate whether they had any formal health and safety programmes for their employees. They were also asked to indicate how frequently their companies undertook health and safety trainings for their employees based on a Likert scale of 1 to 5, where "1= Highly Infrequent" and "5= Highly Frequent". They were further asked to indicate on a Likert scale how frequent their companies kept records on accidents on the construction site. Finally, they were asked to indicate how frequently incentives were provided for good safety performance on site.

The other part of the questionnaire asked the respondents to indicate whether some selected practices were performed on site in order to meet occupational health and safety requirements based on a Likert scale of 1 to 5, where "1=not performed at all" and "5=Highly performed". The second part of the third section sought to find out their perceptions of the level of contribution of some selected factors to health hazards on construction sites. These factors were ranked based on a Likert scale of 1 to 5 where "1=Very low contribution" and "5= Very high contribution".

Also the respondents asked to rank based on a Likert scale of 1 to 5 influential factor that hinder the operation of occupation health and safety performance systems, where "1=Not Influential" and "5= Highly Influential".

Finally, the questionnaire asked respondents to rank the level of importance of measures that can improve the operation of occupational health and safety management systems on construction sites based on a Likert scale of 1 to 5, where "1= Highly Unimportant" and "5=Highly Important".

3.9 ANALYSIS OF DATA

The completed questionnaires were edited to ensure completeness, consistency and readability. Once the data had been checked, they were arranged in a format that enabled easy analysis. Quantifiable data from the questionnaires was coded into the software for analysis. Statistical Package for Social Sciences (SPSS) was selected because it was considered to be user friendly.

3.9.1 MEAN SCORE

The mean is utilized as a measure of central tendency. A high mean relevance rating would mean that the factor under consideration is important (Hoe, 2006; Sprinthall, 1987). The mean scores were obtained by the following formula

$$MS = \frac{\sum (F * S)}{N} \quad \text{.....Equation (3.2)}$$

Where;

S = score given to each factor by the respondents,

F = frequency of responses to each score for each factor and

N = total number of responses in the respective factor

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter describes the results and discussion of archival records/documents, and questionnaire survey concerning with assessment of safety and health performance among construction site workers of public construction projects in Addis Ababa koye fetche project from managers, skilled workers and daily labors (unskilled workers) viewpoints.

4.2 GENERAL BACKGROUND OF THE RESPONDENTS

Table 1; Respondent profiles

Respondents‟ Characteristics	Managers		Skilled Workers		Daily-Labours (Unskilled Workers)	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Gender						
Male	30	75%	33	66%	19	63.3%
Female	10	25%	17	34%	11	36.7%
Total	**40**	**100%**	**50**	**100%**	**30**	**100%**
Years of Experience						
0-5 years	4	10%	14	28%	30	100%
5-10 years	13	32.5%	15	30%	0	0
10-15 years	16	40%	11	22%	0	0
15 above	7	17.5%	10	20%	0	0
Total	**40**	**100%**	**50**	**100%**	**30**	**100%**
Educational Qualification						
Level	0	0%	3	6%	0	0
Diploma	0	0%	7	14%	0	0
Bachelor’s Degree	31	77.5%	29	58%	0	0
Master’s Degree	9	22.5%	11	22%	0	0

Total	**40**	**100%**	**50**	**100%**	**0**	**0%**

Part one of the questionnaire was meant to obtain general information about the involvement of the respondents. As illustrated from figure below 75% (30 out of 40) of the managers and 66% (33 out of 50) of skilled workers are males and 25% (10 out of 40) from managers and 34% (17 out of 50) of skilled workers are females.

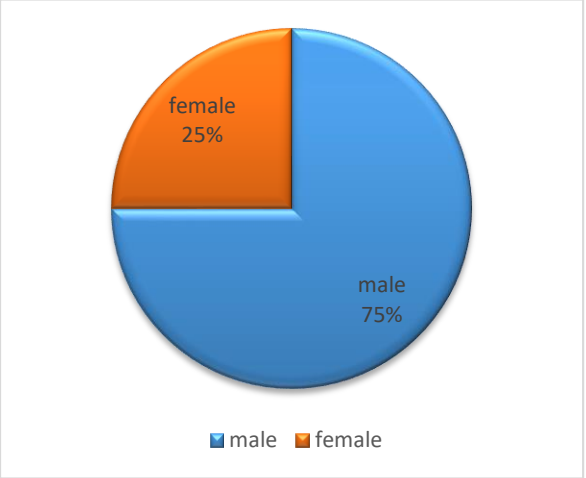


Figure 1: gender classification of the managers

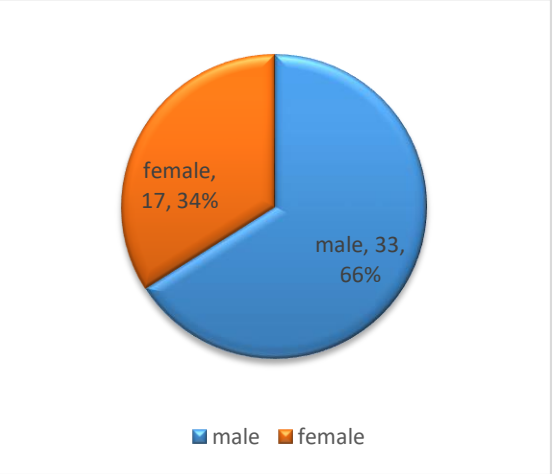


Figure 2: gender classification of skilled workers

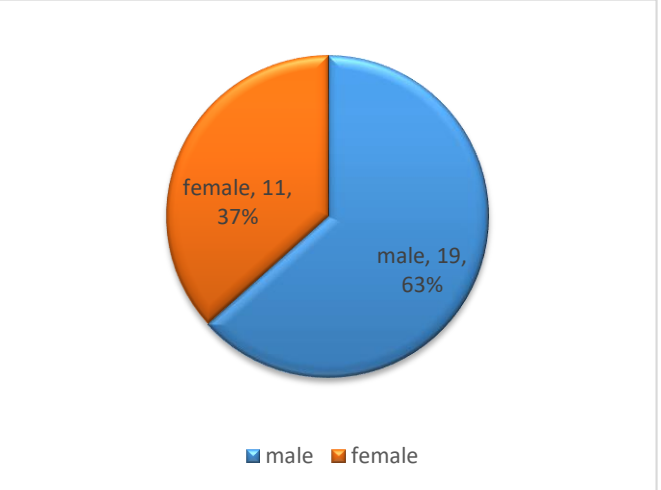


Figure 3: gender classification of unskilled workers

Figure 4 and 5 below shows that the majority of the respondents have achieved at least above bachelor's degree (77%). This indicates that they know the factors affecting safety and health

awareness among construction site workers. This implies that construction is one of the most male-dominated industries in the world.

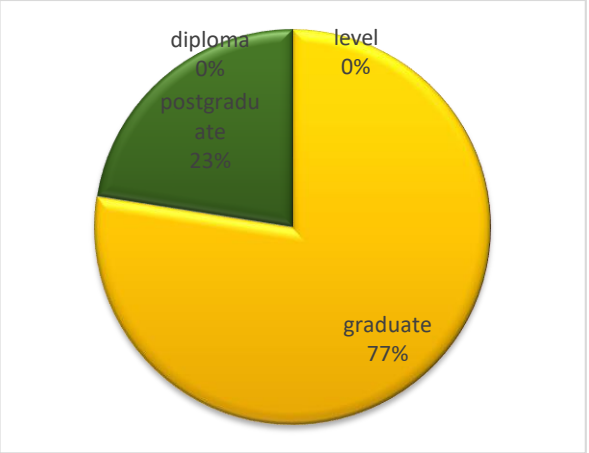


Figure 4: academic level of managers

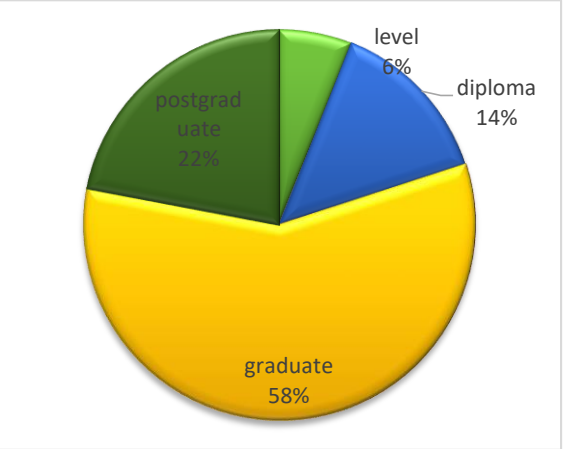


Figure 5: academic level of skilled workers

Figure 6 and 7, shows that the respondents from managers and skilled workers have experiences on their position in order to reflect their answers on factors affecting safety and health awareness in construction site.

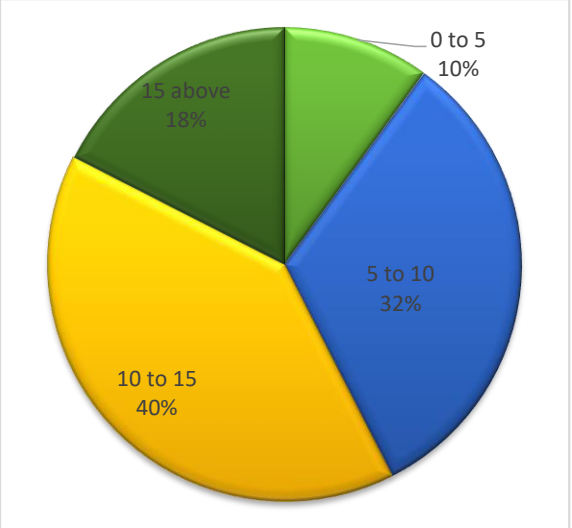


Figure 6: experience of managers

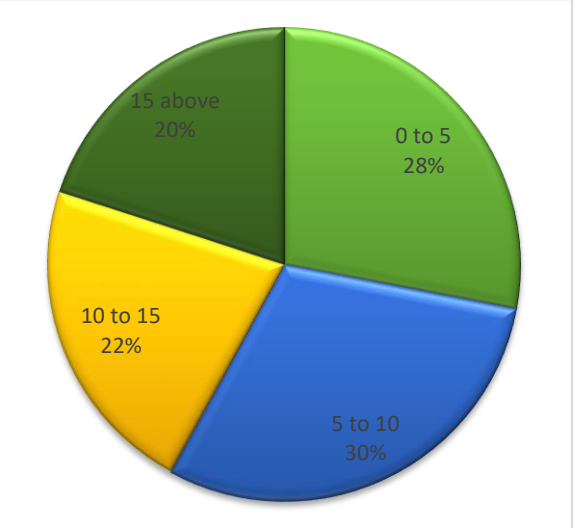


Figure 7: experience of skilled workers

4.3 RELATIVE VIEW OF MANAGERS AND SKILLED WORKERS ON SAFETY AND HEALTH PERFORMANCE

This titles deals with the relative view of clients, consultants, and contractors from distributed questionnaire.

4.3.1 Health and safety programmes for employees

Top management's commitment to safety or lack of commitment will set the tone for the rest of the company. Top management must take every opportunity to become involved in its company's safety effort (Peyton et al., 1991, as cited in Yankah, K, 2012).

Respondents were asked to indicate whether they have any health and safety programmes for their employees.

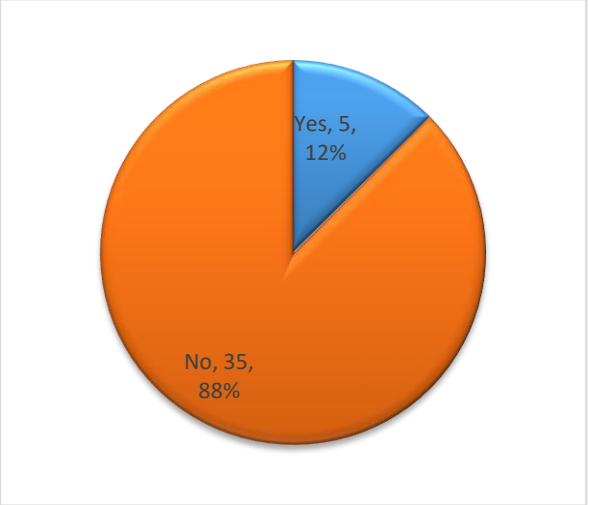


Figure 8: view of managers on safety program program

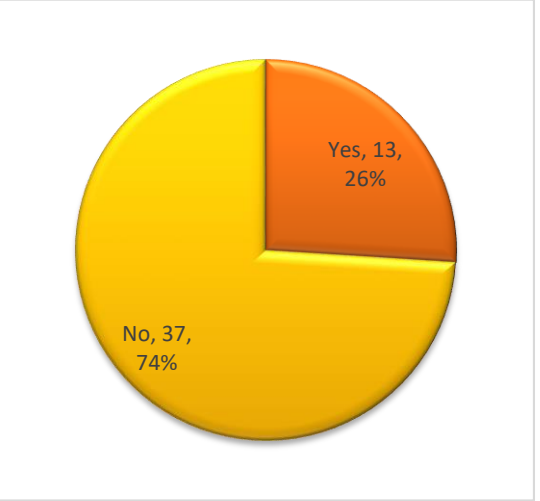


Figure 9: view of skilled workers on safety

Health and safety programmes are essential for ensuring that health and safety regulations are complied with on construction sites. According to OSHA, (2016), establishing a safety and health program at your job site is one of the most effective ways of protecting your most valuable asset. And also OSHA states that losing workers to injury or illness, even for a short time, can cause significant disruption and cost to you as well as the workers and their families. It can also damage workplace morale, productivity, turnover, and reputation.

Safety and health programs foster a proactive approach to "finding and fixing" job site hazards before they can cause injury or illness. Rather than reacting to an incident, management and workers collaborate to identify and solve issues before they occur (OSHA 2016). The results from figure, 8 and figure 9 shows that the managers respond that they have no safety

programmes for their employees. This was realized from the fact that 88% of the managers responded "No" when they were asked to indicate whether they had the programme and 74% of skilled workers also confirm the idea of the managers.

4.3.2 Level of understanding safety and health policy

Safety and health awereness is the most important to know the way how to tackle hazards arised from construction site before the hazard is happen. All workers are trained to understand how the program works and how to carry out the responsibilities assigned to them under the program and Employers, managers, and supervisors receive training on safety concepts and their responsibility for protecting workers' rights and responding to workers' reports and concerns(OSHA, 2016). OSHA also states that all workers are trained to recognize workplace hazards and to understand the control measures that have been implemented.

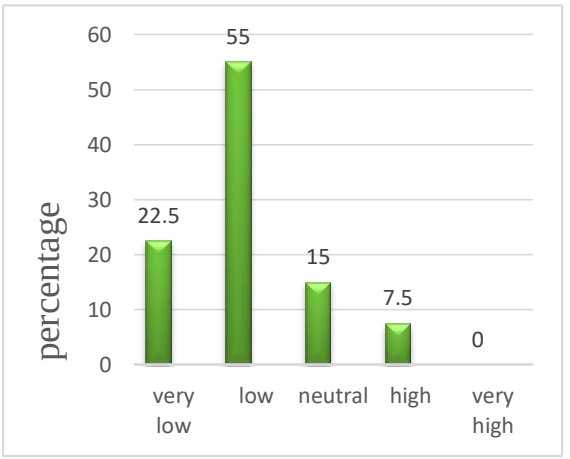


Figure 10: view of managers on level of awareness

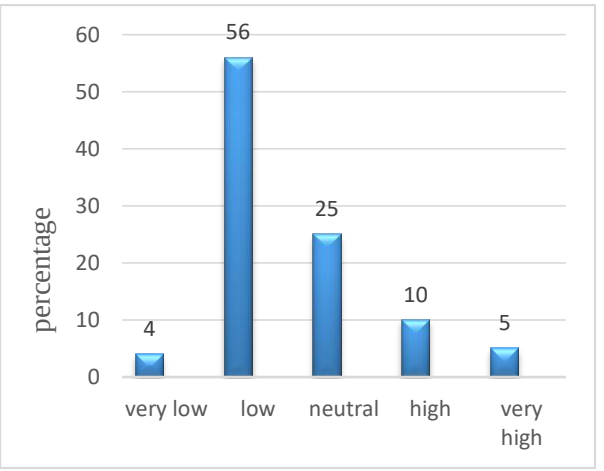


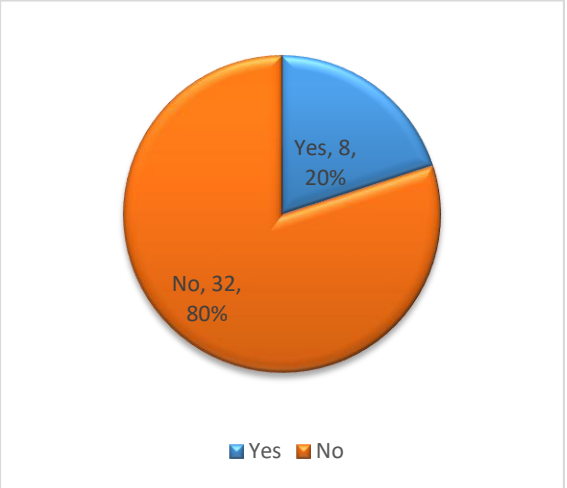
Figure 11: view of skilled workers on awareness

The respondents also asked that how much you understand the safety and health policy. As seen from the figure above figure 10 and 11, the level of awareness among the employers the parties relatively similar. According to managers view the likert scale which emphasize high percentage is "low" level of understanding with 55% from the other levels of understanding. Also the skilled workers respondents give emphasizes on "low" level of understanding 56%.

4.3.3 Written safety and health policy

Written safety and health policy is used as the directions or guidelines to construction workers in order keep their health and safety from hazards happen in construction site.

The respondents also asked that, does your company has a written safety and health policy. As observed or seen from the figure below the workers from the three parties reflects their own opinions.



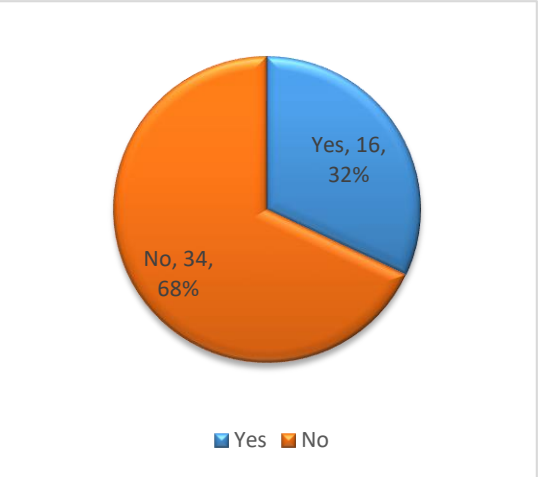
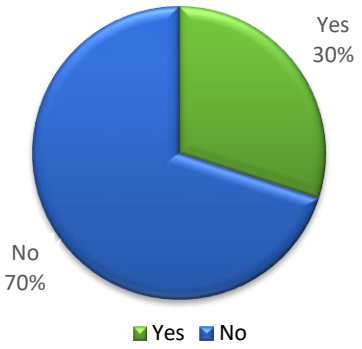


Figure 12: view of managers on written policy Figure 13: view of skilled workers on written policy

From figure 12and 13, 80% of the managers, and 68% of skilled workers confirms that their company do not have written safety and health policy.

4.3.4 Internal safety and health department

On larger projects where workers from several contractors are working together, more formal methods of communication, such as health and safety committees and safety representatives, will be in place (CDM, 2015). Industrial safety and health problems are becoming major challenges in Ethiopia because of low occupational hazards awareness, lack of workplace safety and health policy, and inefficient safety management systems, due to these factors employers, workers and the government are incurring measurable and immeasurable costs (Sebsibe and Esrael, 2016). Internal safety and health department ensure that hazard awareness, promote the employers or the workers with safety and health policy.



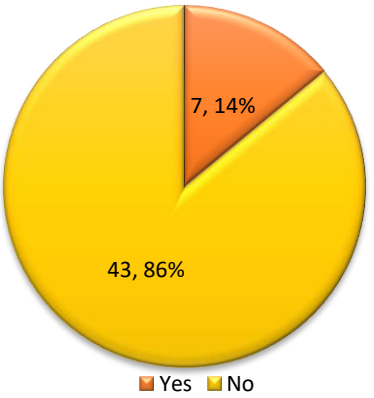
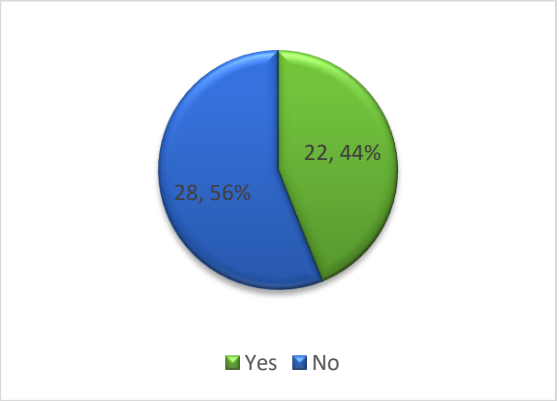


Figure 14: view of managers on safety department Figure 15: view of skilled workers on safety department

From the above figure or figure 14 and 15 there is no internal safety and health department because the respondents reflect their responses according their opinion. From managers 70% respond "No" while the left respondents or 22% say "Yes" and also the skilled workers also confirm the answer of the managers of the absence of internal safety and health department by86%.

4.3.5 Temporary keeping of accident records

Temporary keeping of accident record used to prepare every workers to take appropriate measures before the injury is occur. Also for the new employer it motivate them to reduce the injury. The respondents asked that does the company keeps the records of accident on site



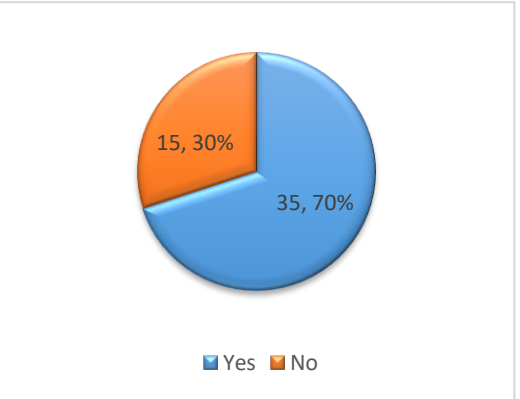


Figure 16: managers view on accident record Figure 17: skilled workers view on accident report

As observed from the above figure the results from managers and skilled workers are relatively approached to each other. This means 44% of the managers and 70% of skilled workers respond "NO" when they asked to respond the temporary keeping of accident report on the site.

4.3.6 Consultation of employees on safety and health matters

Consultation and engagement is much more than being given information, it is about employers listening and taking account of what you say before decisions that affect your health and safety are made (CDM, 2015).

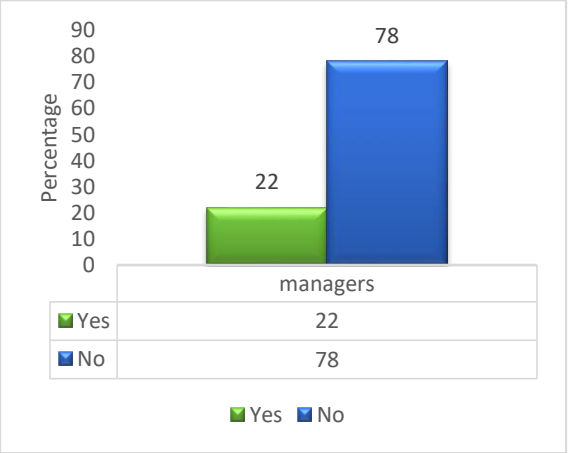


Figure 18: view of managers on consultation

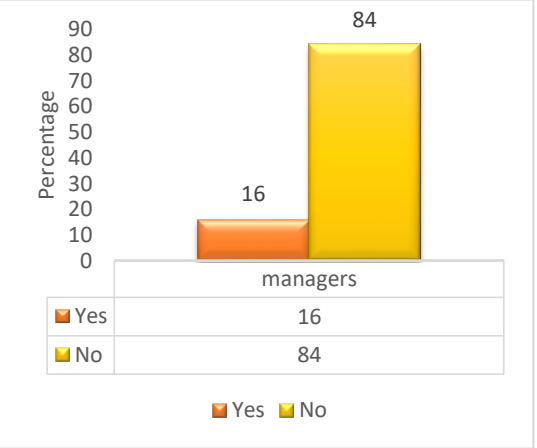


Figure 19: view of skilled workers on consultation

Consultation is the way by which the workers encouraged with safety and health policy and the mechanism in which the worker reduce safety and health risks. From figure 18 and 19, the managers, and skilled workers, answers "NO" and the percentage of their answer is 78%, 84%, respectively.

4.3.7 Formal site health and safety inspections

Formal site health and safety inspection is the method of identifying or assessing the site causing safety and health problem during construction process. It is done by the representative groups of the company. An initial assessment of existing hazards, exposures, and control measures is followed by periodic inspections and reassessments, to identify new hazards and

any incidents are investigated with the goal of identifying the root causes (OSHA 2016).

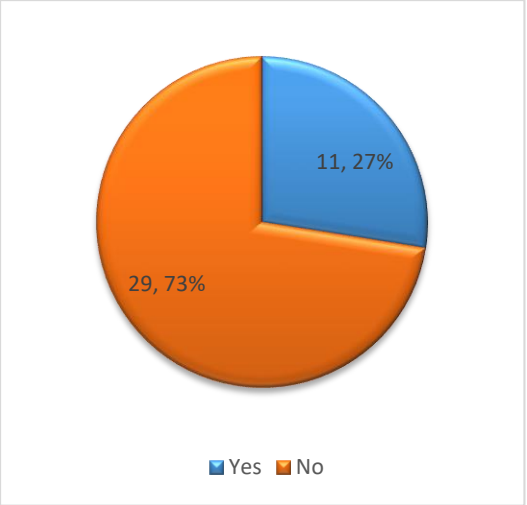


Figure 20: view of client on-site inspection

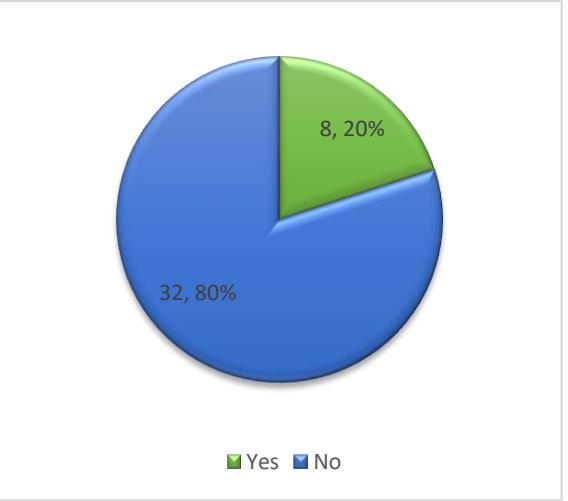


Figure 21: view of consultant on-site inspection

The results show not much difference in the views of managers, and skilled workers on formal site health and safety inspections carried out on site. The managers are of the view that formal site health and safety inspections are do not carried out on site (73%) (Fig 20), skilled workers are of the view that adequate health and safety inspections on construction sites (90%) (Fig 21).

4.3.8 Frequency of training for the employees

Each construction companies should arrange appropriate health and safety training for employees using qualified professionals (Mersha et al. 2016).

The respondents were asked to indicate how health and safety trainings were conducted on the construction sites. The results from managers, and skilled workers are shown in figures 22, and 23, respectively.

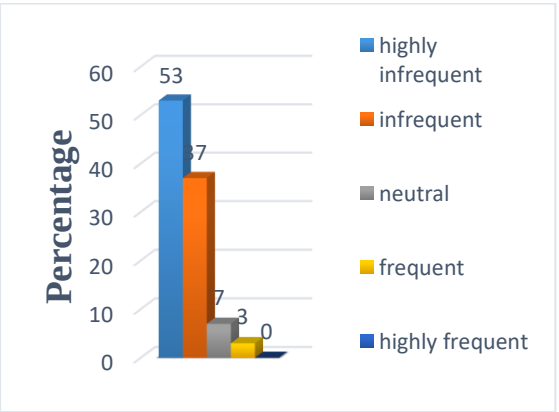


Figure 22: view of managers on training

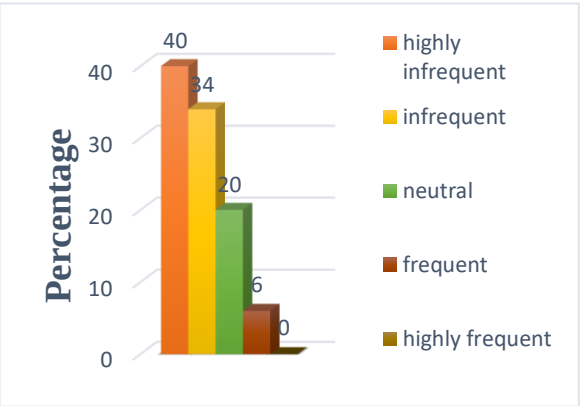


Figure 23: view of skilled workers on training

In construction site, training is very important to aware of construction site workers how to reduce or minimize the risk happened during construction progress. According to Yankah, K. (2012), all construction site workers must understand the company's safety policy and procedures and the hazards associated with the work. And also, He said that when employees first arrive on site, a safety orientation training program should be provided. This training session can cover the company and project safety policies, safety regulations, site orientation, personal protective equipment and OSHA required training.

The results of clients, consultants, and contractors on how frequent health and safety trainings are organized on site not much different. The highest percent of respondents from manager's consultant, and contractor sides reflects the absence of health and safety trainings for employers at construction site. The highest percent of the response is "highly infrequent" and the percentage of the response from figure 22, and 23, is 53%, 40%, for managers and skilled workers respectively.

4.3.9 Frequency of incentives for the employees

Incentives are used to appreciate any individual workers who deals with the reduction of hazards that causes health and safety problems. The respondents were also asked that Frequency of incentives for the employees and the results as follow.

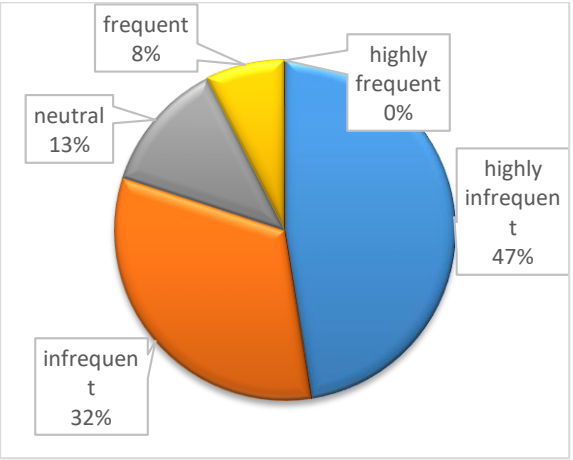


Figure 24: view of managers on incentives

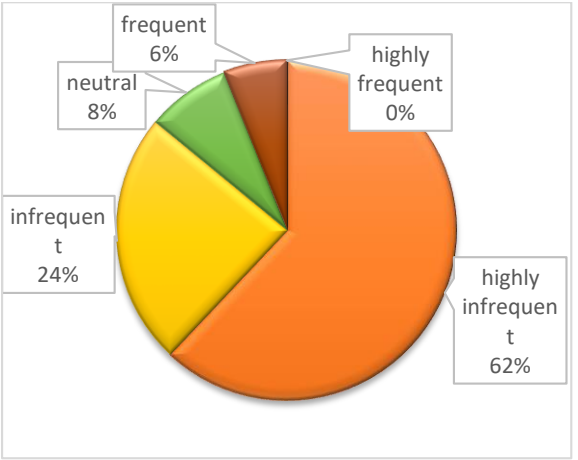


Figure 25: view of skilled workers of incentives

According to figure 24, and 25, the responses of the respondent towards the frequency of training is "highly infrequent". The managers, and skilled workers, responded 47%, and 62% respectively.

4.3.10 Provision of personal protective equipment

Employers are required by law to provide all workers including casual workers with the following personal protective equipment and protective clothing on site (ILO, 1991).

- safety helmets or hard hats to protect the head from injury due to falling or flying objects, or due to striking against objects or structures;
- clear or colored goggles, a screen, a face shield or other suitable device where workers are likely to be exposed to eye or face injury from airborne dust or flying particles, dangerous substances, harmful heat, light or other radiation, and in particular during welding, flame cutting, rock drilling, concrete mixing or other hazardous work;
- protective gloves or gauntlets, appropriate barrier creams and suitable protective clothing to protect hands or the whole body as required, against heat radiation or while handling hot, hazardous or other substances which might cause injury to the skin;
- footwear of an appropriate type when employed at places where there is the likelihood of exposure to adverse weather conditions, or of injury from falling or crushing objects, hot or hazardous substances, sharp-edged tools or nails and slippery or ice- covered surfaces;
- respiratory protective equipment, suitable for a particular environment, where workers can be protected against airborne dust, fumes, vapours or gases by ventilation or other means;
- a suitable airline or self-contained breathing apparatus when employed in places likely to have an oxygen deficiency;
- respirators, overalls, head coverings, gloves, tight-fitting boiler suits, impermeable footwear and aprons appropriate to the risks of radioactive contamination in areas where unsealed radioactive sources are prepared or used; and waterproof clothing and head coverings when working in adverse weather conditions.

Table 2; View of managers on provision personal protective equipment

Practice	**Managers**				
	Yes		No		Rank
	Frequency	Percentage	Frequency	percentage	
Provision of hard Hats	24	**60%**	16	**40%**	1
Provision of ear muffs	0	**0%**	40	**100%**	4
Respiratory protection	0	**0%**	40	**100%**	4
Provision of hand gloves	14	**34%**	26	**66%**	2
Provision of safety overall	0	**0%**	40	**100%**	4
Provision of safety goggles	0	**0%**	40	**100%**	4
Provision of safety boots	5	**11%**	35	**89%**	3
Provision of safety belts and lifelines	0	**0%**	40	**100%**	4

Table 2, or managers view state that there is no much provision of personal protective equipment for the workers. “Provision of hand gloves”, “provision of safety overall”, “provision of hard hats” and “provision of safety boots” are sometimes met for some worker. This results show that much more need to be done concerning the provision and utilization of protective equipment on construction sites.

Table 3; view of skilled workers on provision of personal protective equipment

Practice	**Skilled workers**				
	Yes		No		Rank
	Frequency	percentage	frequency	percentage	
Provision of hard Hats	22	**43%**	28	**57%**	1
Provision of ear muffs	0	**0%**	50	**100%**	4
Respiratory protection	0	**0%**	50	**100%**	4
Provision of hand gloves	9	**17%**	41	**83%**	3
Provision of safety overall	1	**7%**	48	**9%**	6
Provision of safety goggles	4	**13%**	46	**87%**	4
Provision of safety boots	8	**27%**	42	**77%**	2
Provision of safety belts and lifelines	1	**3%**	49	**97%**	6

According to consultant view seen from table 3, the majority of the respondents responded the absence of the provision of personal protective equipment from their company. Some employees said that they provide the personal protective equipment like hard Hats, Provision of safety boots for themselves.

4.3.11 Factors that contribute to health hazards on construction sites

The client side respondents were asked the factors affecting safety and health among construction site workers. The table 4 shows the results.

Table 4; view of manager's factors that Contribute to Health Hazards

Factor	Managers	
	MS	Rank
Exposure to dust	3.7714	6
exposure to fumes	2.200	13
Exposure to vibration	2.2571	12
Exposure to electric	3.5714	8
Exposure to high level of noise	2.4928	9
Manual lifting of heavy weights	3.8285	5
Untidy construction site	4.7349	1
Poorly maintained tools	3.5573	7
falling objects from working platform, hoist and scaffolds	4.7109	2
Failure of platforms and scaffolds	4.5973	3
Waste materials littered on construction site	2.3207	10
Movement of mobile construction plant on construction site	2.3301	11
Ladders not properly placed	3.9107	4

The results in Table 4 above reveal that "Untidy construction site", "falling objects from working platform, hoist and scaffolds", and "Failure of platforms and scaffolds" are the first three major factors that contribute to health hazards on construction sites. Other factors include

"Ladders not properly placed", "Manual lifting of heavy weights", "Exposure to dust" "Poorly maintained tools" and "Exposure to electric" equally contribute health hazards at construction site. Among the factors which least contribute to health hazards on construction sites are "unguarded edges of platforms", "movement of mobile construction plant on construction sites", "exposure to fumes", "Exposure to vibration", and "Waste materials littered on construction site".

Table 5; view of skilled workers factors that Contribute to Health Hazards

Factor	**Skilled workers**	
	MS	Rank
Exposure to dust	4.3714	5
exposure to fumes	2.3176	13
Exposure to vibration	2.3571	12
Exposure to electric	3.9714	6
Exposure to high level of noise	3.6428	9
Manual lifting of heavy weights	4.5285	4
Untidy construction site	4.7349	1
Poorly maintained tools	3.9573	7
falling objects from working platform, hoist and scaffolds	4.709	2
Failure of platforms and scaffolds	3.7973	8
Waste materials littered on construction site	2.4907	10
Movement of mobile construction plant on construction site	2.4701	11
Improper placed ladder	4.6107	3

The results in Table 5 above or the skilled workers view reveal that “Untidy construction site”, “falling objects from working platform, hoist and scaffolds”, “Improper placed ladder” and “Manual lifting of heavy weights” are the first four major factors that very highly contribute to health hazards on construction sites. “Exposure to dust”, “Exposure to electric”, “Poorly maintained tools” and “failure of platforms and scaffolds”, and “Exposure to high level of noise” highly contribute health hazard on construction site. Among the factors which least contribute to health hazards on construction sites are “exposure to fumes”, “movement of mobile construction plant on construction sites”, “Exposure to vibration”, “Waste materials littered on construction site” among others.

4.4 FACTORS AFFECTING SAFETY AND HEALTH PERFORMANCE AMONG CONSTRUCTION SITE WORKERS

Table 6; view of managers on Factors affecting safety and health performance

Factors	Managers				
	Yes		No		Rank
	Frequency	Percentage	Frequency	Percentage	
Absence of safety and health program for employees	34	**82%**	6	**18%**	6
Lack of adequate training of employees in health and safety consultation	35	**86%**	5	**14%**	4
Absence of safety and health policy	37	**91%**	3	**9%**	3
Absence of safety and health department in the company	40	**100%**	0	**0%**	1
Lack of site safety and health inspection	34	**83%**	6	**17%**	5
Absence of incentives for employees	30	**71%**	10	**29%**	7
Lack of personal protective equipment	27	**63%**	13	**37%**	8

Lack of temporary keeping of accident records	38	**94%**	2	**6%**	2

Table 7; view of skilled workers on Factors affecting safety and health performance

Factors	**Skilled workers**				Rank
	Yes		No		
	Frequency	Percentage	Frequency	Percentage	
Absence of safety and health program for employees	21	**43%**	29	**57%**	5
Lack of adequate training of employees in health and safety consultation	26	**53%**	24	**47%**	4
Absence of safety and health policy	35	**70%**	15	**30%**	2
Absence of safety and health department in the company	31	**63%**	19	**37%**	3
Lack of site safety and health inspection	18	**36%**	32	**64%**	6
Absence of incentives for employees	11	**23%**	39	**77%**	8

Lack of personal protective equipment	16	**33%**	34	**67%**	7
Lack of temporary keeping of accident records	36	**83%**	14	**27%**	1

The respondents reveal their opinion based on the questions given to them. According to the respondents there are the lack of safety and health policy, lack of personal protective equipment, lack of adequate training, lack of temporary keeping of accident records, lack of site safety and health inspection and absence of incentives for employees are the main factors affect safety and health performance among construction sit workers.

4.4 UNSKILLED WORKERS VIEW

4.4.1 AWARENESS OF SAFETY AND HEALTH POLICY

The daily labours or unskilled workers were asked that do you know safety and health policy and they respond as follows.

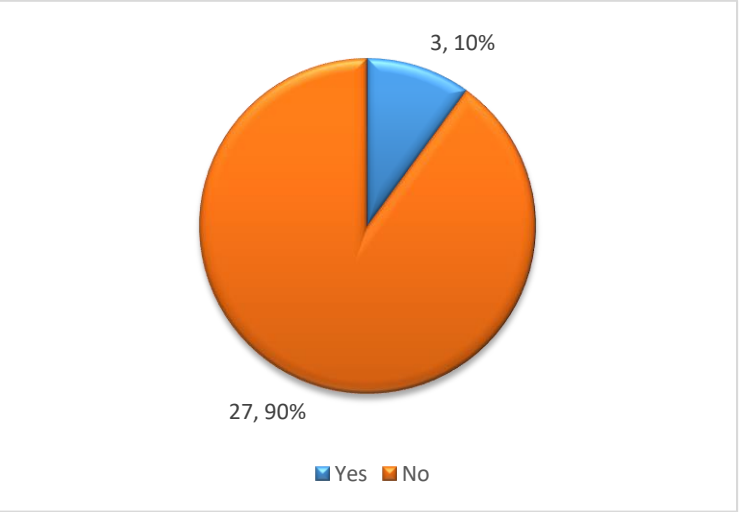


Figure 26: view of unskilled workers on safety and health policy

Awareness of health and safety policy was used to stay health and safe in construction site. From figure 26, 90% of the respondent answers “No”. This indicate the workers need information about towards health and safety policy.

Again the respondent were asked that, do you know personal protective equipment.

Having protective gear without knowing its limitations can do more harm than good, because it gives the worker or employer the illusion that the worker is protected (Ringen and Seegal 2001). From figure 27, 80% of the respondents do not know personal protective equipment which indicate that the daily labours need training on personal protective equipment.

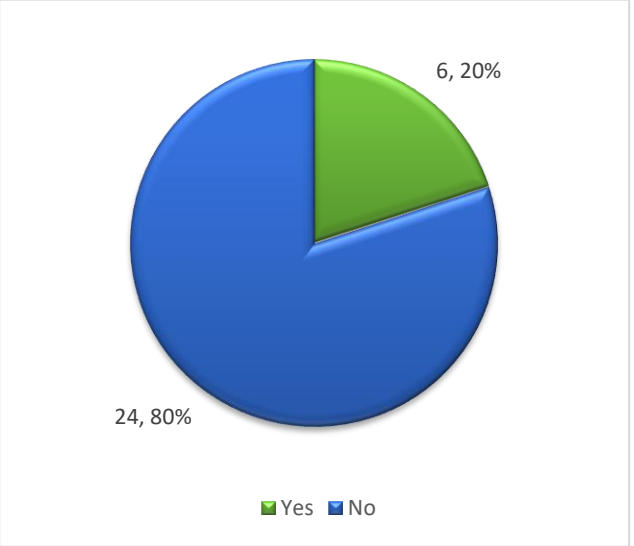


Figure 27: view of unskilled workers on personal protective equipment

4.4.2 IMPLEMENTATION OF SAFETY AND HEALTH POLICY

Also the respondents asked that you implement safety and health policy at the site. Implementing safety and health policy at construction site ensure the state of being safe and health as well as reduce the cost of accident and hazards of the workers. Figure 28 , shows that 100% of the respondent state that they do not implemented safety and health policy at construction site because do not trained safety policy.

The result of the respondent shown in figure bellows.

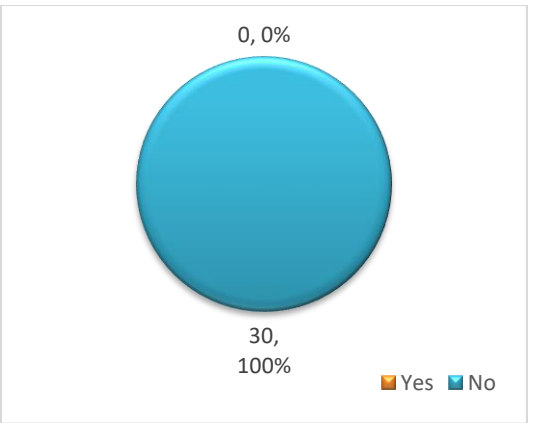


Figure 28: view of skilled workers on implementation safety policy

SAFETY AND HEALTH TRAINING FOR THE EMPLOYEES

Safety and health training is important for employees to identify safety and health hazards in construction. The daily labours unskilled workers were asked that does your company undertake health and safety trainings for workers.

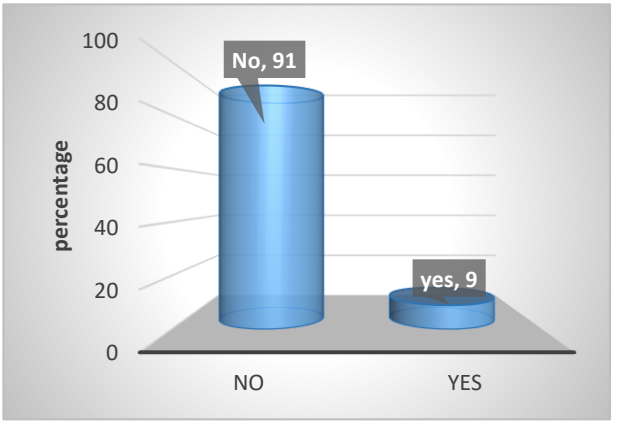


Figure 29: view of unskilled workers on training

The main purpose of training is to acquire and improve knowledge, skills and attitudes towards work related tasks and also it is one of the most important potential motivators which can lead to both short-term and long-term benefits for individuals and organizations (Aidah N. 2013). The result from figure 29 state that 91% the respondents answered "No" which indicate the absence of safety and health training for the unskilled workers from the company.

4.4.3 INCENTIVES FOR THE EMPLOYEE

Incentives for employers or workers are used to motivate them in order to implement safety and health policy in construction site. The respondents were also asked the provision of incentives on construction site and the figure below reveal their result.

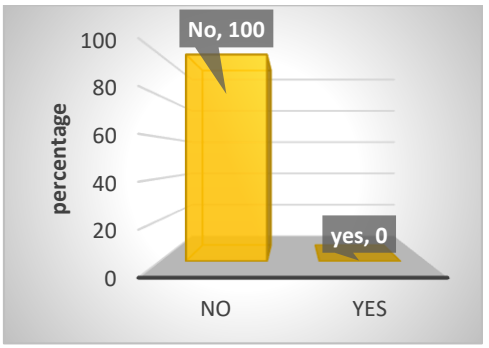


Figure 30: view of unskilled workers on incentives

According to Sagar and Rushabh (2017), Incentives is one of the determinants that motivate workers to behave in a desired manner to safety regulations on site and it can be viewed a psychological approach that rewards workers for their adhered routine on site. From figure 30,100% of the respondent replied "No". This implies that there is no incentives provision for unskilled workers.

4.4.4 PROVISION OF PERSONAL PROTECTIVE EQUIPMENT

According to MOLSA (2008), every employer shall at his own expense furnish his workers with protective equipment for the eyes, face' hands and feet, protective shields and barriers whenever necessary by reason of the hazardous nature of the process or environment, chemical or radiological or other mechanical irritants or hazards capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

Table 4-8: view of unskilled workers on provision equipment

Practice	Unskilled workers				
	Yes		No		Rank
	frequency	percentage	Frequency	Percentage	
Provision of hard Hats	3	**10%**	27	**93%**	2
Provision of ear muffs	0	**0%**	30	**100%**	4
Respiratory protection	0	**0%**	30	**100%**	4
Provision of hand gloves	2	**6%**	28	**96%**	3
Provision of safety overall	0	**0%**	30	**100%**	4
Provision of safety goggles	0	**0%**	30	**100%**	4
Provision of safety boots	5	**16%**	25	**84%**	1

Provision of safety belts and lifelines	0	**0%**	30	**100%**	4

From table 4-10, above the respondents reveal their opinion based on the provision of provided equipment on construction site. According to their respond the highest percent of the respondents say "No". These implies that there is no provided personal protective equipment on construction site and unskilled workers exposed to accident. From table above the percent of provided equipment is provision of ear muffs(0%), provision of safety belts and lifelines(0%), provision of safety goggles(0%), provision of safety overall(0%), respiratory protection(0%), provision of hand gloves(4%), provision of hard hats(7%), and provision of safety boots(0%).

4.4.5 FACTORS THAT CONTRIBUTE TO HEALTH HAZARDS ON CONSTRUCTION SITES

Table 8; view of unskilled workers on factors affect safety and health

Factor	**Unskilled workers**				
	Yes		No		Rank
	Frequency	percentage	frequency	Percentage	
Exposure to dust	27	**60%**	18	**40%**	7
exposure to fumes	25	**55%**	20	**45%**	8
Exposure to vibration	25	**55%**	20	**45%**	8
Exposure to electric	23	**51%**	22	**49%**	9
Exposure to high level of noise	23	**51%**	22	**49%**	9
Manual lifting of heavy weights	37	**82%**	8	**18%**	3
Untidy construction site	39	**86%**	6	**14%**	2
Poorly maintained tools	28	**62%**	17	**38%**	6

falling objects from working platform, hoist and scaffolds	41	**91%**	4	**9%**	1
Failure of platforms and scaffolds	31	**68%**	14	**32%**	5
Waste materials littered on construction site	25	**55%**	20	**45%**	9
Movement of mobile construction plant on construction site	27	**60%**	18	**40%**	7
Improper placed ladder	35	**78%**	10	**12%**	4

According to the daily labours or unskilled workers response the percentage of factors affect safety and health of the workers on construction site is above 50%. As seen from table 8., falling objects from working platform, hoist and scaffolds (91%), Untidy construction site (86%), manual lifting of heavy weights (82%), improper placed ladder (78%), failure of platforms and scaffolds (68%), poorly maintained tools(62%), exposure to dust(60%), movement of mobile construction plant on construction site(60%), waste materials littered on construction site(55%), exposure to electric(55%), exposure to fumes(51%), exposure to high level of noise(51%). These imply that all factors affect health and safety of the workers of Koye Fetche public construction project.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSION

This research is concerned with assessment of safety and health performance among construction site workers in construction projects. The state of being safe and health, is very important in construction project in order to promote construction and increase the country income. In every construction it is important to know safety and health rules and regulations, because of, reducing the risk happen during construction process.

Based on the results of the questionnaire survey, there is the lack of safety and health performance. These problem were happened because of, absence of safety and health program for employees, lack of adequate training of employees in health and safety consultation, absence of safety and health policy, absence of safety and health department in the company, lack of site safety and health inspection, absence of incentives for employees, health and safety, lack of temporary keeping of accident records.

5.2 RECOMMENDATIONS

Implementation of occupational health and safety management systems are important on construction sites to ensure that accidents and risks are minimized. To help improve upon the operation of occupational health and safety management systems in the construction industry, it is recommended that;

- Addis Ababa housing project office should establish safety and health program at all of its branches.
- The employers should arrange adequate training for all of his new employees and existing employees.
- Addis Ababa housing project should order all its branch to establish safety and health department to organize safety and health training and consultation for employees.
- The employers or Addis Ababa housing project office, all assigned consultants office and the contractors should institute safety and health award scheme to motivate site workers.
- Periodic site safety and health inspection should be organized in employer's office in order to assess site safety and health hazards.
- Personal protective equipment should have given for all site workers to protect them from the injuries.

5.3 PROPOSED FUTURE RESEARCH AREAS

The following research areas are proposed to complement/enhance this study**:**

- Investigating the cause of stakeholder's unwillingness to give related documents on the case of safety and health performance among construction site workers.
- Alternative way of encouraging documentations on safety and health in construction projects.

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APPENDICES

APPENDIX-A

Addis Ababa Science and Technology University

College of Architecture and Civil Engineering

Department of Civil Engineering

Postgraduate Program in Construction Technology and Management

INFORMATION FOR RESPONDENTS

Dear participants;

The questionnaire is prepared by Construction Technology and Management post graduate student for conducting research on "**Assessment of safety and Health awareness among construction site workers of public construction project in Addis Ababa, the case Koye Fetche**" under the supervision of Dr. **Girmay Kahssay, (PhD)**.

The aim of this questionnaire is to study the Assessment of safety and Health awareness among construction site workers of public construction project in Addis Ababa. This questionnaire is required to be filled with exact relevant facts as much as possible. The information will be used for academic purposes only. Your answers will be kept completely confidential. It will be collected and presented as summaries only. The compiled results of this research may be published in scientific research journals or presented at professional conferences.

Therefore, your honest response is very much important input to my thesis. After all questionnaires are collected and analyzed. And also, interested participants of this study will be given feedback on the overall research results.

Thanks a lot for your time and assistance.

APPENDIX-B

Questionnaire for Managers and Skilled workers

The question below are related to your organization and yourself. Please indicate your response by ticking ('X' or '√') the appropriate box, and filling the blank spaces provided as appropriate.

PART-I

GENERAL BACKGROUND

Address (Location) ……

Tel. No. ……. e-mail address ……

Job title of respondent ……

Please provide the following personal data:

1. Gender: Male [ ] Female [ ]

2. How many years of experience do you have in the construction industry?

Less than 0- 5 yrs [ ] 5-10 yrs [ ] 10-15 yrs [ ] 0ver 15 yrs [ ]

3. Please tick [ ] your educational qualifications

Level [ ]

Technician Certificate [ ]

Diploma [ ]

Graduate [ ]

Post graduate [ ]

MAIN PART OF QUESTIONNAIRE

PART – II

1. Does your company have a formal health and safety programme for employees?

   Yes [ ] No [ ]

2. For this questions rank on a likert scale of 1 to 5 how much you understand safety and health policy?

1	2	3	4	5
Very low	low	Neutral	High	Very high

3. Does your company have a written health and safety policy?

   Yes [ ] No [ ]

4. Does your company have an internal health and safety department?

   Yes [ ] No [ ]

5. . Does your company keeps records of accidents on site.

   Yes [ ] No [ ]

6. Does your organization consult its employees on health and safety matters?

   Yes [ ] No [ ]

7. Does your company undertake formal site health and safety inspections?

   Yes [ ] No [ ]

8. Does your company have a formal health and safety training programme for your employees?

   Yes [ ] No [ ]

9. For the following questions rank on a likert scale of 1 to 5 how frequently your company undertake health and safety trainings for workers?

1	2	3	4	5
Highly infrequent	infrequent	Neutral	frequent	Highly frequent

10. For the following questions rank on a likert scale of 1 to 5 how frequently your company undertake incentives for workers?

1	2	3	4	5
Highly infrequent	infrequent	Neutral	frequent	Highly frequent

11. Below are some practices that comply with occupational health and safety requirements on construction sites. Which of these practices are performed most on your sites?

Say Yes or No

Practice	Yes	No
Provision of hard Hats		
Provision of ear muffs		
Respiratory protection		
Provision of hand gloves		
Provision of safety overall		
Provision of safety goggles		
Provision of safety boots		
Provision of safety belts and lifelines		

12. Indicate on the Likert scale of 1 to 5 the level of contribution of the following factors to health hazards on your construction sites in the last five years

1	2	3	4	5

Very low contribution	low contribution	Neutral	High contribution	Very high contribution

Factor	1	2	3	4	5
Exposure to dust					
exposure to fumes					
Exposure to vibration					
Exposure to electric					
Exposure to high level of noise					
Manual lifting of heavy weights					
Untidy construction site					
Poorly maintained tools					
falling objects from working platform, hoist and scaffolds					
Failure of platforms and scaffolds					
Waste materials littered on construction site					
Movement of mobile construction plant on construction site					
Ladders not properly placed					
Unguarded edges of platforms					

13. Below are some factors affect the performance of health and safety management on construction sites? Say yes or no

Factors	Yes	No

Absence of safety and health program for employees		
Lack of adequate training of employees in health and safety consultation		
Absence of safety and health policy		
Absence of safety and health department in the company		
Lack of site safety and health inspection		
Absence of incentives for employees		
Lack of personal protective equipment		
Lack of temporary keeping of accident records		

APPENDIX-C

Questionnaire for UN- Skilled workers

The question below are related to your organization and yourself. Please indicate your response by ticking ('X' or '√') the appropriate box, and filling the blank spaces provided as appropriate.

PART-I

GENERAL BACKGROUND

Address (Location) ……

Job title of respondent ……

Please provide the following personal data:

Gender: Male [ ] Female [ ]

PART-II

1. Do you know safety and health policy?

   Yes [ ] No [ ]

2. Do you know personal protective equipment?

   Yes [ ] No [ ]

3. Do you implement safety and health regulation at the project site you work on?

   Yes [ ] No [ ]

4. Does the organization consult or train its employees on health and safety matters?

   Yes [ ] No [ ]

5. Does the organization provide incentives for the employees for good safety performance?

   Yes [ ] No [ ]

6. Below are some practices that comply with occupational health and safety requirements on Construction sites. Which of these practices are performed most on your sites?

   Say Yes or No

Practice	Yes	No
Provision of hard Hats		
Provision of ear muffs		
Respiratory protection		
Provision of hand gloves		
Provision of safety overall		
Provision of safety goggles		
Provision of safety boots		
Provision of safety belts and lifelines		

7. Below are some factors affect the performance of health and safety management on construction sites. Say yes or No

Factor	Yes	No
Exposure to dust		
exposure to fumes		
Exposure to vibration		
Exposure to electric		
Exposure to high level of noise		
Manual lifting of heavy weights		

Untidy construction site		
Poorly maintained tools		
falling objects from working platform, hoist and scaffolds		
Failure of platforms and scaffolds		
Waste materials littered on construction site		
Movement of mobile construction plant on construction site		
Improper placed ladder		